

# Lightweight IMM Multi-Junction Photovoltaic Flexible Blanket Assembly, Phase I

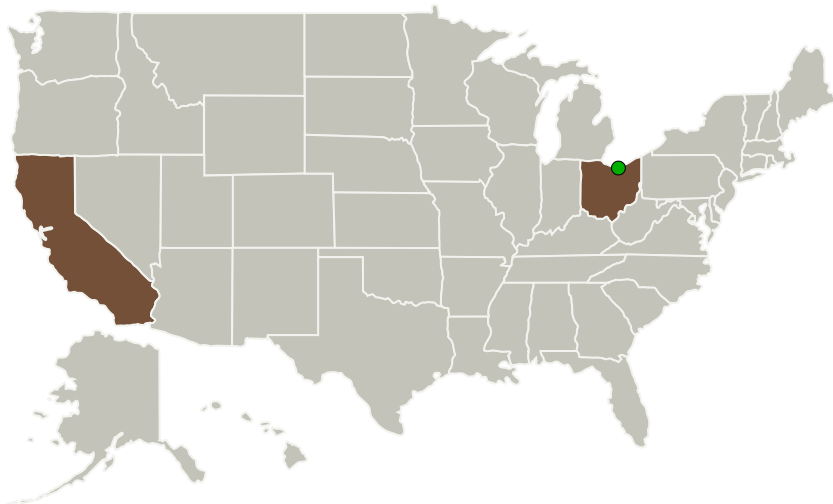
Completed Technology Project (2010 - 2010)



## Project Introduction

Deployable Space Systems (DSS) and EMCORE as a key subcontractor will focus the proposed SBIR program on the creation and optimization of a lightweight ~33% efficient IMM multi-junction photovoltaic flexible blanket assembly specifically for future NASA Space Science missions that demand ultra-lightweight and high voltage operability. The proposed IMM PV flexible blanket assembly when coupled to an optimized structural platform will produce revolutionary array-system-level performance in terms of high specific power (>500 W/kg BOL at the array level, or >1000 W/kg BOL at the blanket assembly level), lightweight, high deployed stiffness, high deployed strength, compact stowage volume (>50 kW/m<sup>3</sup> BOL), reliability, modularity, adaptability, affordability, and rapid commercial readiness. Once successfully validated through the proposed Phase 1 and Phase 2 programs, DSS's lightweight IMM PV blanket assembly technology will provide incredible performance improvements over current state-of-the art, and in many cases will be mission-enabling for future NASA and non-NASA applications.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

## Project Transitions

 **January 2010:** Project Start

 **July 2010:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140027>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Deployable Space Systems, Inc (DSS)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Brian R Spence

### Co-Investigator:

Brian Spence

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## Technology Maturity (TRL)

Start: **2**  
Current: **4**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.1 Power Generation and Energy Conversion
    - └ TX03.1.1 Photovoltaic

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System